



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,715	05/23/2001	Patricia J. Nelson	8540G-000007	1500

27572 7590 06/04/2003
HARNES, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

MERCADO, JULIAN A

ART UNIT PAPER NUMBER

1745

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/863,715

Applicant(s)

NELSON ET AL.

Examiner

Julian A. Mercado

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 10-20 is/are allowed.
- 6) ☐ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☐ Claim(s) 3,7-9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102 and 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shinoki et al. (U.S. Pat. 5,190,726).

Regarding independent claim 1 and dependent claims thereto as noted, Shinoki teaches a system for sensing the relative humidity of a fuel cell comprising a dew point meter [16] for sensing the dew point of a gas stream and a first sensor [17] for sensing pressure. (col. 3 line 23-26) The system employs a humidifier such as a steam source. (col. 3 line 22-23) A compensator such as “flow-rate sensing computing element” [21] is connected to the dew point meter and the pressure sensor via “partial pressure calculating unit” [19a] and “steam flow-rate calculating unit” [20a] and subsequently generates a signal based on the respective sensed parameters of the dew point meter and pressure sensor, then directed to a controller “FC” [22] which increases the

Art Unit: 1745

steam flow rate accordingly, thereby increasing the level of humidity. (col. 3 line 12-53, Figure 1, applies to dependent claim 2)

As to the dew point meter disclosed by Shinoki functioning as a humidity sensor, Shinoki specifically teaches that the dew point meter is responsive to a change in the amount of humidity. (col. 1 line 35-40) Thus, it would naturally flow or at least would be obvious to the skilled artisan that the dew point meter functions as a humidity sensor to the extent that the humidity sensor is recited in the claims, absent of a showing by applicant that the claimed invention distinguishes over the reference. *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) and *In re Spada*, 15 USPQ 2d 1655 (Fed. Cir. 1990)

Claims 1, 2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over DuBose (U.S. Pat. 6,013,385) in view of Tsukui et al. (JP Pat. 62-176064).

Regarding independent claim 1 and dependent claims thereto as noted, DuBose teaches a system for sensing the relative humidity of a fuel cell comprising a humidity sensor [50] for sensing the humidity of a gas stream, a first sensor [52] sensing temperature and a second sensor [54] sensing pressure. (col. 6 line 20-24) The gas stream is an air source. (col. 5 line 11-14, applies to dependent claim 4)

DuBose does not explicitly teach a compensator connected to the humidity sensor and either the first sensor which is temperature-sensing or the second sensor which is pressure-sensing. However, Tsukui teaches a compensator [12] that within the patentee's disclosure is connected to a humidity sensor [11]. (Abstract) The compensator in Tsukui generates a signal which in turn is sent to a controller [13]. The controller then directs the number of rotations of a blower [14] so as to control the final relative humidity of the system, the blower thereby

Art Unit: 1745

functioning as a humidifier. (applies to dependent claim 2) Thus, it would have been obvious to one of ordinary skill in the art to employ a compensator in DuBose's invention. The motivation for such a modification would be to control the relative humidity of the process gas stream, notably consistent with DuBose's disclosure of an "unshown computer feedback control system". (DuBose, col. 6 line 24-28)

As to a compensator including memory look-up tables or one employing mathematical formulas, it would naturally flow, *prima facie*, that the computer feedback control system of DuBose and the compensator and controller of Tsukui will inherently have memory look-up tables or employ mathematical formulas as claimed, as these devices are similarly computer-based devices, absent of a showing by applicant that the claimed invention distinguishes over the reference. (applies to claim 5, 6) *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) and *In re Spada*, 15 USPQ 2d 1655 (Fed. Cir. 1990)

Allowable Subject Matter

Claims 3 and 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 10-20 are allowed.

The following is a statement of reasons for the indication of allowable subject matter in claims 3 and 7-9 and for the allowance of claims 10-20: the prior art of record and to the examiner's knowledge do not teach or render obvious the instant invention regarding the gas stream being a reformat or hydrogen, i.e. H₂ source (as recited in claim 3) and regarding a gas

Art Unit: 1745

composition sensor for sensing a concentration of a first gas in the reformat or hydrogen source gas stream.

The art presently relied upon, DuBose and Tsukui, teaches or at least suggests the claimed invention to the extent that the gas stream is an air or oxygen source, i.e. one that is fed as an oxidant to the cathode side of the fuel cell. While gas composition sensors are known in the art such as that disclosed in Kawatsu (U.S. Pat. 5,712,052), the gas composition sensor [1] is for sensing a concentration of a first gas such as carbon monoxide within an incoming H₂ gas stream. (col. 6 line 51-67)

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 3,719,529 to Lake teaches humidification of the anode gas stream.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

/

/

/

Application/Control Number: 09/863,715

Page 6

Art Unit: 1745

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, consisting of a large loop followed by a series of smaller, overlapping loops.

am

May 27, 2003

A handwritten signature in black ink, featuring a large, stylized 'S' followed by a series of overlapping loops.

STEPHEN KALAFUT
PRIMARY EXAMINER
GROUP

1700